REMARKS

Claims 17 – 54 and 69-81 are now pending in the application. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

REJECTION UNDER 35 U.S.C. § 103

Claims 17 and 34 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Caron et al (U.S. Pat. No. 5,370,840). This rejection is respectfully traversed.

Claims 17 and 34

At the outset, the Applicant submits that the above rejections have been rendered moot by the amendments, which clarify that the process for forming an alloy containing 0.005% to 0.10% Silver and having an electrical conductivity of at least 77% IACS includes a second age anneal at 300° C to 450° C for one to twenty hours. Support for this subject matter is found in ¶ [0037], where an alloy contains from 0.005% to 0.3% silver, and in ¶ [0039] where an alloy contains 0.08% to 0.13% silver. Additionally, the application discloses as Example 2 in ¶ [0116]-[0117] numerous alloys having a silver content within the range of 0.005% to 0.1%, such as J308, J310, and BT. The Applicant states in ¶ [0117] that the alloys were subjected to a second anneal at 390° C for six hours, and also states in Table 4 that such alloys J308 and J310 possessed an conductivity of 84% and 77% IACS. The Applicant states in ¶ [0090] that the second step anneal 24 is at a temperature of from about 300° C and 450° C for from one to twenty hours. Accordingly, the application supports the amendment of an alloy containing 0.005% to 0.10% Silver having an electrical conductivity of at least 77% IACS including a second age anneal at 300° C to 450° C for one to twenty hours.

The Office Action states that obviousness typically exists when the ranges of a claimed composition overlap the ranges discloses within the prior art, relying on *In re Peterson*, 315 F.3d 1325 (Fed. Cir. 2003). However, the Examiner's reliance on *In re Peterson* is misplaced, since the Applicant is claiming a process, and not a particular Copper Alloy composition that may or may not be found in the prior art. The Applicant is not claiming a particular Copper alloy composition, but rather a process for forming a Copper alloy using the Applicant's particular process steps that results in the claimed advantageous characteristics. The mere disclosure in the prior art of a similar Copper alloy composition does not anticipate or render obvious a process of forming a Copper alloy having properties or characteristic not found in the prior art alloy.

The Office Action states that obviousness typically exists when the ranges of a claimed composition overlap the ranges discloses within the prior art. However, an Appellant can also rebut a *prima facie* case of obviousness based on overlapping ranges by showing the criticality of the claimed range, generally by showing that the claimed range achieves unexpected results relative to the prior art range." *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990); MPEP 2144.05. Here, claims 17 and 34 recite a process for forming a Copper alloy that includes a Chromium content in the range of .15 to 0.7% a Silver content in the range of 0.005% to 0.1%, and a second age anneal at 300° C to 450° C for one to twenty hours, which the Appellant believes is required to achieve the unexpected results of an electrical conductivity of at least 77% IACS, good resistance to stress relaxation and isotropic bend properties. (see Alloy J310, in present application, page 32, lines 18-20; Table 7A; page 12, lines 3-10).

CARON does not teach or suggest a process for forming a Copper alloy including 0.005% to 0.1% Silver, or a second age anneal at a temperature between 300° C and 450° C. CARON only states that an "optional second non-recrystallizing precipitation hardening anneal 40 is at a temperature of from about 450° C to about 500° C. for from about 2 to 4 hours". (CARON, column 8, lines 43-46). Accordingly, CARON discloses an age anneal temperature range that is above the Applicant's claimed range of 300° C to 450° C. The Applicant submits that the process in claims 17 and 34 both produce a Copper alloy that has good resistance to stress relaxation and isotropic bend properties, while providing an electrical conductivity of at least 77% IACS (which conductivity is better than 13 of the 18 alloy examples recited in CARON, and exceeded only by Alloy A and R). The Applicant submits that such characteristics are an unexpected result, which is supported by the lower yield strength and lower conductivity values listed in CARON. (CARON, Col. 10, Table 4).

The Federal Circuit has also held that where the claimed and prior art products are alleged to have identical compositions, the prima facie case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product. *MPEP 2112*; *In re Best*, 195 USPQ at 433 (Fed. Cir. 1990). Here, the alloys disclosed in CARON do not necessarily possess the characteristics of an alloy having good resistance to stress relaxation, isotropic bend properties, and an electrical conductivity of at least 77% IACS, if said alloys are formed without the particular steps taken by the Applicant.

To illustrate, the Applicant notes that a Copper alloy such as alloy J308 (consisting of 0.50% Chromium, 0.49 Titanium, 0.020% Silicon and 0.046 Silver) would

not possess the claimed property of an electrical conductivity of at least 77% AICS, if it is only in a Cold Rolled condition (see Alloy J308, for example, in present application, page 29, Table 4). However, the same J308 Copper alloy composition would possess the characteristics and properties of the claimed invention when following the Applicant's claimed process for Age anneal. Accordingly, alloys having the same composition do not necessarily possess the same properties, where the alloys are processed differently. Absent the disclosure of the Applicant's particularly claimed Silver content and age anneal temperature range, CARON does not necessarily possess the characteristic of an alloy having good resistance to stress relaxation and an electrical conductivity of at least 77% AICS.

The Applicant points to the disclosure in the present application, which states that "Silver promotes isotropic bend properties", and that "When the alloy is in the aged condition, the silver addition improves resistance to elevated temperature stress relaxation", where "Table 6, showed a decrease in stress relaxation (increase in stress relaxation resistance) with a silver addition". (see present application, page 12, lines 3-10; page 32, lines 7-9; Table 6).

The present application further states that "processing of the alloy of the invention has a significant impact on the finished gauge alloy properties", and that "excessive annealing time or temperature leads to undue grain growth and poor bend formability". (see present application, page 15, lines 6-8; page 17, lines 15-18). The application states that "the second step anneal 24 is at a temperature of from about 300° C and 450° C for from one to twenty hours leading to increased electrical conductivity without a loss in strength", and that "The alloy may be used in the age

annealed condition when enhanced resistance to stress relaxation is required". (see present application, page 19, lines 20-29). The application further describes this step in Example 2, in which a first anneal is followed by a second anneal at 390° C for six hours...[which] hardened the alloys while increasing conductivity over the cold rolled values without recrystallizing the microstructure". (see present application, page 27, lines 26-29). The application further states that "the alloy of the invention J310 had isotropic bends while the silver-free control alloy J306 had somewhat anisotropic bends". (see present application, page 32, lines 18-20). Thus, Claims 17 and 34 recite a process including a particular Silver content of 0.005% to 0.1%, and a particular step of a second anneal at a temperature of from about 300° C and 450° C, which is not found in CARON. CARON does not teach or suggest such a process that would result in the particular characteristics or properties claimed by the Applicant, of an alloy having good resistance to stress relaxation, isotropic bend properties, and an electrical conductivity of at least 77% IACS. As such, the Applicant submits that claims 17 and 34 are not obvious in view of CARON, and are allowable for at least these reasons.

REJECTION UNDER 35 U.S.C. § 103

Claims 18-33, 35-54, and 69-81 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Caron et al (U.S. Pat. No. 5,370,840) in view of JP 59-193233. This rejection is respectfully traversed.

Claims 18-33, 35-54, and 69-81

The Office Action states that JP 59-193233 teaches Sn, Fe, Ti, Ag, Si, and other elements, and that combining known ingredients is within the realm of performance of ordinary skill artisans. However, JP 59-193233 recites a Copper alloy including Chromium that further contains one or more element selected from one or both of a first element group consisting of Ni, Sn, Fe, Co, Zn, Ti, Be, B, Mg, P, Ag, Si, Mn, Cd, Al, and a second element group consisting of Nb, V, Hf, Mo, W, Y, La, Ta and Ga. (see JP 59-193233). This laundry list of possible impurities is so broad it encompasses a very large number of possible combinations, which only invites further experimentation to find a species with the Appellant's claimed range of Chromium and Silver that will result in the unexpected result of an alloy having good resistance to stress relaxation, isotropic bend properties, and an electrical conductivity of at least 77% IACS. JP 59-193233 also does not disclose the claimed second age anneal at 300° C to 450° C for one to twenty hours (which is below CARON's disclosed second age temperature range of 450° C to 500° C for 2 to 4 hours; CARON, column 8, lines 43-46). Thus, JP 59-193233 discloses a large number of possible combinations, without any mention whatsoever of a Chromium or Silver content required to achieve an alloy having good resistance to stress relaxation, isotropic bend properties, and an electrical conductivity of at least 77% IACS. Thus, the Appellant submits that JP 59-193233 does not render obvious the Applicant's process for forming a Copper alloy in claims 18-33, 35-54, and 69-81.

The Federal Circuit has held that a prior art reference that discloses a genus does not render unpatentable all species within that broad category, but must be examined to see if a disclosure of the claimed species has been made or whether the prior art reference merely invites further experimentation to find the species. *MPEP 2112(IV)*; *Metabolite Labs, Inc. v. Lab. Corp. of Am. Holdings*, 71 USPQ2d 1081, 1091 (Fed. Cir. 2004). Here, JP 59-193233 merely indicates that, among many other elements, Silver can be included, and accordingly discloses the broad genus of Copper alloys having various amounts of a number of different elements, which merely invites further experimentation to find a species with Appellant's claimed range of Silver that will result in an alloy having good resistance to stress relaxation, isotropic bend properties, and an electrical conductivity of at least 77% IACS. Thus, the Appellant submits that JP 59-193233 does not render obvious the Applicant's process for forming a Copper alloy recited in claims 18-33, 35-54, and 69-81.

CONCLUSION

It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (314) 726-7505.

Respectfully submitted,

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